|  |  |
| --- | --- |
| **Topic 1: Numbers** | |
| **AusVELS: MNA** | |
| Investigate index notation and represent whole numbers as products of powers of prime numbers | * defining and comparing prime and composite numbers and explaining the difference between them |
| Investigate and use square roots of perfect square numbers | * investigating square numbers such as 25 and 36 and developing square-root notation |
| * investigating between which two whole numbers a square root lies |
| Apply the associative, commutative and distributive laws to aid mental and written computation | * understanding that arithmetic laws are powerful ways of describing and simplifying calculations |

|  |  |  |
| --- | --- | --- |
| **Lesson** | **Learning Intention** | **Activities** |
| 1 | * Numbers can be arranged into rectangular arrays. | * Activity 1: Rectangular Numbers Introduction |
| * Making easy numbers * The commutative and associative laws * The commutative law works for multiplication and addition but not for division and subtraction | * Exercise 1.1 (selected questions) |
| 2 | * Numbers can be arranged into rectangular arrays. | * Activity 1: Rectangular Numbers cont. |
| * The distributive law | * Exercise 1.1 (selected questions) |
| 3 | * Some rectangles can be arranged in squares. * Square roots and square root notation. | * Activity 2: Square Numbers |
| * Work in stages to break down multiplications and divisions into simpler steps | * Exercise 1.3 Question 1` |
| 4 | * Some numbers can be arranged into cubes * Cube roots and cube root notation. | * Activity 3: Cube Numbers |
| 5 | * Writing numbers using index notation. | * Exercise 1.2 (selected questions) * Teacher’s Age (page 19) |
| * Solving a problem by looking for a pattern | * Squares on a chessboard (page 20) |
| 6 | * Some numbers can only be arranged into one type of rectangle. * Prime numbers are numbers that can only be arranged into one type of rectangle * Composite numbers are numbers that can be arranged into more than one type of rectangle | * Activity 4: Primes & Composites |
| * Use an array to split numbers into 10s and 1s * Multiplying by multiples of 10 * Dividing by multiples of 10 | * Exercise 1.3 (selected questions) |
| 7 | * Using easier numbers by rounding | * Exercise 1.4 (questions 1 to 3) * Estimation frustration (page 35) |
| 8 | * Solving a problem by looking for a pattern | * Exercise 1.4 Question 10 |
| * Using easier numbers to estimate | * Estimation frustration (page 35) * Exercise 1.4 (questions 4 onwards) |

**Warm up activities:** Rectangles, Times-Table Bingo